

SYSTEM AND METHOD FOR A  
QUALITY OF SERVICE IN A  
MULTI-LAYER NETWORK ELEMENT

5

ABSTRACT

a A multi-layer network element for forwarding received packets from an input port to one or more output ports with quality of service. When output queues exceed or meet a threshold value below the queue's capacity packets are <sup>randomly</sup> ~~randomly~~ discarded. When the queue becomes full, the network element determines which flow caused the

10 queue to overflow. The priority of that flow is lowered. In a multicast packet, the packet may have different priorities at each output port. Scheduling of multiple output queues at each output port uses a weight round robin approach that allocates a weight portion of packets to transmit at each time interval. A packet is not interrupted during its transmission, even if the weight portion is met during a packet's transmission. The

15 excess number of bytes transmitted as a result of not interrupting the packet are accounted for in the next round.